and typewriters for example, and known in the art is employed. In another embodiment a lint-free cotton material such as TX 309 TEXWIPE or the equivalent is used. TEXWIPE is a trademark used by Texwipe Incorporated of Upper Saddle River, New Jersey. A padded pressure plate **270**, vertically actuated by means of a cam **280** for example, can be used to bring the fabric tape into contact with the orifice plate. Again the tape could be contained in a replaceable cassette **276** having a tape access window **278**.

With reference to FIG. **35** in another embodiment a continuous loop of a lint-free fabric tape **268** such as described above is used to apply treatment fluid to the orifice plate **40** of a printhead **30**, and again performs a cleaning function in addition to transferring treatment fluid to the printhead. In this embodiment the fabric loop is disposed on rollers **281** supported by the service station **50** and driven by a transfer wheel roller **222** turned by a shaft **282** coupled to a drive motor (not shown) controlled by the printer controller. The transfer wheel is in a treatment fluid bath **284**, comprising for example a high molecular weight PEG which is heated for use, but otherwise is in solid form preventing leakage from tipping etc. As will be apparent, the transfer wheel could alternatively be wetted as described above in connection with FIGS. **23**, **24**, **25**, or **31** for example. Returning to FIG. **35** a padded pressure plate **270** is vertically movable by a hydraulic actuator **286** to bring the fabric tape into and out of contact with the orifice plate. To accommodate vertical deflection of the fabric tape, and maintain a constant tension on the fabric tape, a spring-biased tensioner **288** is conventionally provided.

Turning now to FIGS. **36–39**, in a further embodiment of the invention a metered amount of treatment fluid **74** is applied directly to the printhead **30** by throwing or projecting it through the air from a projecting means onto the orifice plate **40**. An advantage of such a system is that the source of treatment fluid is not contaminated by contact with a wiper **70** or the printhead.

Referring to FIG. **36**, in one embodiment a low-volume mechanical spray pump **290** carried by the service station **50** is actuated, for example by a cam or solenoid (not shown), to spray a metered dose of one to five microliters of treatment fluid onto the orifice plate as it passes by or is stationed over a sprayhead **292** of the pump. Treatment fluid is stored in a collapsible fluid reservoir **220** fluidly connected to the pump via a fluid conduit **152** in this embodiment. The treatment fluid is PEG of molecular weight 200–600 in this embodiment.

With reference to FIG. **37**, in another embodiment the treatment fluid **74** is thrown or projected onto the printhead by a thermal jetting process in the same way as ink is projected in well-understood thermal inkjet processes used in printing. An inkjet-like cartridge **294** having a collapsible treatment fluid reservoir **296** and a conventional thermal printhead **298** connected to a power supply **300** is positioned, for example on a service station sled **52**, so as to be able to project treatment fluid onto the pen printhead as desired, the jetting of treatment fluid being controlled by the printer controller **94** and coordinated with the motion of the printhead **30** passing by or stationed over the treatment fluid-projecting printhead **298**. The cartridge is filled with a jettable treatment fluid, for example one-half PEG of between 200 and 600 molecular weight, and one-half water. As can be appreciated, a piezo-electric ink jetting cartridge, also otherwise conventional, can be used instead of a thermal system. An advantage of this embodiment is that treatment fluid can be metered, for example by counting drops ejected as is known in the art to provide an optimal dose of treatment fluid.

Turning to FIGS. **38** and **39** in another embodiment of the invention the treatment fluid **74** is thrown or projected toward the printhead **30** by a spring steel "flipper" **302** cantilever-mounted on the service station **50** adjacent a tumbler **162** having a relatively stiff transfer wiper **304** mounted thereon. A treatment fluid source **184**, for example comprising a mesh-covered foam reservoir **100** as described above, is positioned to be contacted by the transfer wiper as the tumbler is rotated. Other reservoir embodiments described herein could be substituted for the mesh-covered foam reservoir shown. As the tumbler **162** is rotated a small reproducible quantity of treatment fluid is picked up by the transfer wiper **304** as it wipes the mesh-covered foam treatment fluid reservoir **100**. This quantity of treatment fluid is transferred to the spring steel flipper **302** as the transfer wiper rotates around and contacts the flipper. The flipper is elastically deflected downwardly, and scrapes the tumbler mounted transfer wiper clean of treatment fluid as the transfer wiper continues to rotate past. As can be appreciated, when the transfer wiper clears the flipper the flipper is released and rebounds upwardly, flinging a reproducible portion of the treatment fluid upward and onto a printhead **30** to be serviced, the printhead being positioned at a first position above the flipper for this purpose.

After the treatment fluid **74** has been thrown onto the printhead **30** the printhead is moved along its axis of travel to a second position to be wiped by an offset tumbler-mounted wiper **70**. This is best appreciated with reference to FIG. **39**.

With reference to FIG. **40**, in another embodiment the spray pump, treatment fluid jet, or flipper described above can be used to apply treatment fluid to the wiper instead of the printhead directly. As an example, a service station-mounted PEG-jetting cartridge **294** as described above and controlled by the printer controller **94** is configured to spray treatment fluid onto a wiper **70** prior to wiping the orifice plate **40**. The advantages with regard to metering treatment fluid amounts, and preservation of the cleanliness of the source of treatment fluid are obtained in this embodiment as well. As can be appreciated a separate service station-mounted scraper **170** as described above can be provided.

With reference to all the embodiments described herein the application of a treatment fluid in the printhead wiping process adds one more parameter (the treatment fluid itself) that can be varied to keep the printhead **30** clean, resulting in better print quality over the life of the printer **10**, and lower operating costs and reduction of wasted resources due to improper printhead function attributable to inadequate cleaning, particularly where pigment-based, quick drying and waterfast inks are employed. By matching the chemical and physical characteristics of the ink, orifice plate surface **40** and wiper **70** with a complementary treatment fluid, optimization of pen cleanliness, wiper life and servicing speed is possible. These considerations are especially important if a given printhead is used for a long period of time. Moreover, the results of the invention can be obtained using configurations that are maintenance-free throughout the life of the printer **10**. These considerations result in overall improved performance at tow additional cost to purchasers.

Persons skilled in the art will readily appreciate that various modifications can be made from the presently preferred embodiments of the invention disclosed herein and that the scope of protection is intended to be defined only by the limitations of the appended claims.

We claim:

1. A method of servicing an inkjet printer printhead comprising the steps of:

providing a wiper mounted for movement with respect to the inkjet printer printhead in wiping contact therewith to remove unwanted accumulation from the printhead;

providing a source of printhead servicing fluid;

providing another inkjet printhead as a non-contact servicing fluid applicator and orienting said applicator to jet servicing fluid in a reproducible quantity onto a surface of the printhead of said inkjet printer and the wiper;

transporting servicing fluid from said source to said applicator;

jetting servicing fluid from said applicator through atmosphere onto the printhead of said inkjet printer and the wiper; and

wiping the printhead of the inkjet printer by moving the wiper with respect to the printhead of the inkjet printer to remove unwanted accumulation therefrom;

vaporizing said servicing fluid to jet ejectingly said fluid from said applicator printhead; and

said servicing fluid being projected from said applicator printhead onto the printhead and said wiper; and

counting drops of servicing fluid ejected from said applicator head; and

controlling the amount of servicing fluid applied to the printhead based on the counted number of drops.

2. The method of claim **1**, further comprising the steps of:

maintaining said source of servicing fluid in an uncontaminated state by preventing contact between said source of servicing fluid and said wiper.

3. A method of servicing a printhead of an inkjet printer comprising the steps of:

providing a wiper mounted for movement with respect to the printhead to facilitate removing unwanted accumulations from the printhead;

providing a source of printhead servicing fluids;

providing a non-contact applicator and orienting said applicator to project servicing fluid in a reproducible quantity onto a surface of at least one element selected from a group consisting of two elements the printhead and the wiper through surrounding atmosphere;

transporting servicing fluid from said source to said applicator;

projecting the servicing fluid through the atmosphere onto said at least one element; and

wiping the printhead by moving the wiper with respect to the printhead to remove unwanted accumulations from the printhead, said non-contact applicator comprising a spring; and

said servicing fluid being projected by:

deforming said applicator spring; and

releasing said applicator spring to project servicing fluid from said spring onto said printhead by rebound of said spring.

4. A system for servicing an inkjet printer having a printhead reciprocally moved by a carriage and a wiper positioned to move with respect to the printhead in wiping contact therewith to remove unwanted accumulations, comprising:

a source of printhead servicing fluid;

a servicing fluid applicator for projecting servicing fluid through the atmosphere onto the printhead and wiper; and

means for transferring servicing fluid from said source of servicing fluid to said applicator, wherein said applicator comprises an elastically deformable spring for impelling treatment fluid toward at least one of the printhead and wiper.

5. A system according to claim **4**, wherein said applicator is oriented to project a precisely controllable amount of servicing fluid through atmosphere onto a selected area on the printhead of said inkjet printer and said wiper; and wherein

said means for transferring servicing fluid includes:

control means for counting drops of servicing fluid propelled from said applicator to help facilitate controlling the amount of servicing fluid applied to the inkjet printer printhead based on the counted number of drops.

6. The system of claim **4**, wherein said applicator head includes a thermal inkjet head in fluid communication with said source.

7. The system of claim **6**, further comprising a counter coupled to said applicator head for counting drops of servicing fluid ejected therefrom to control the amount of servicing fluid applied to the printhead.

8. The system of claim **4**, wherein said spring is cantilever-mounted and positioned to throw treatment onto said at least one element.

9. The system of claim **8**, further comprising a transfer wiper for placing servicing fluid from said source onto said spring by wiping contact, said transfer wiper being positioned to elastically bend said spring away from said at least one printhead and wiper element and then release said spring.

10. A system according to claim **4**, wherein said applicator includes:

a cartridge for storing said reservoir of treatment fluid; and

said applicator head being in fluid communication with said cartridge for jetting a desired volume of said treatment fluid onto said printhead orifice plate to facilitate an improved wiping action.

11. A system according to claim **10**, wherein said cartridge is a refillable cartridge.

12. A system according to claim **10**, wherein said applicator head is a thermal fluid jetting printhead.

13. A system according to claim **10**, wherein said applicator head is a piezo-electric fluid jetting printhead.

14. A method of servicing a portion of a printhead of an inkjet printer comprising the steps of:

providing a wiper mounted for movement with respect to the printhead in wiping contact therewith to remove unwanted accumulation from a portion of the printhead;

providing a source of printhead servicing fluid;

providing another inkjet printhead as a non-contact servicing fluid applicator and orienting said applicator to jet servicing fluid in a reproducible quantity onto a surface of the printhead of said inkjet printer and the wiper;

transporting servicing fluid from said source to said applicator;

jetting servicing fluid from said applicator through atmosphere onto the printhead of said inkjet printer and the wiper; and

wiping the printhead of the inkjet printer by moving the wiper with respect to the printhead to remove unwanted accumulation therefrom; and

further comprising the steps of:

vaporizing said servicing fluid to jet ejectingly said fluid from said applicator printhead; and

said servicing fluid being projected from said applicator printhead onto the printhead and said wiper.

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